UIC Railway Asset Management Global Conference 2019

17 - 19 April 2019
UIC Headquarters, Paris

A proven Digital Asset Management approach: Success cases in Asset Management digitalisation projects

Asset Management digitalisation (1/2)

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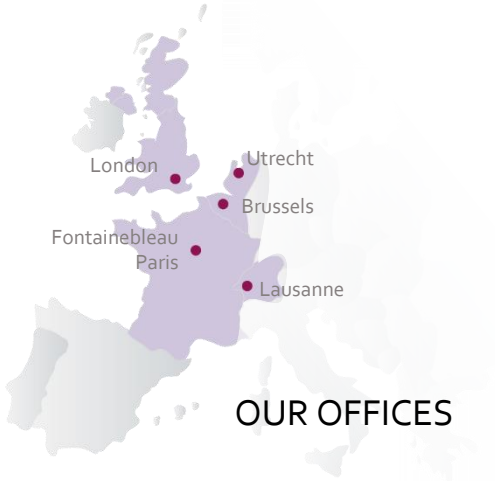
About us

OXAND is European leading firm in Risk & Asset Management for large infrastructure operators – Inspired by Nuclear standards



OUR OFFICES

OUR ACTIVITIES

OUR KEY FIGURES

80+ consultants

1500+ projects

€ 1150 billion worth of analysed assets

40 millions m² of real estate property analysed

250 scientific publications

OUR SOLUTIONS

OUR SECTORS

INFRASTRUCTURE

ENERGY

REAL ESTATE

INDUSTRY

OXAND & SIMEO™ Key references

SAFRAN Messier-Bugatti-Dowty

SNCF

EDF

Keolis

ALSTOM

L'ORÉAL

MICHELIN UNE MEILLEURE FAÇON D'AVANCER

VINCI

MINISTÈRE DES ARMÉES

APRR

meridiam INVESTING FOR THE COMMUNITY

VEOLIA

PARIS AÉROPORT

Rte

GROUPE RENAULT

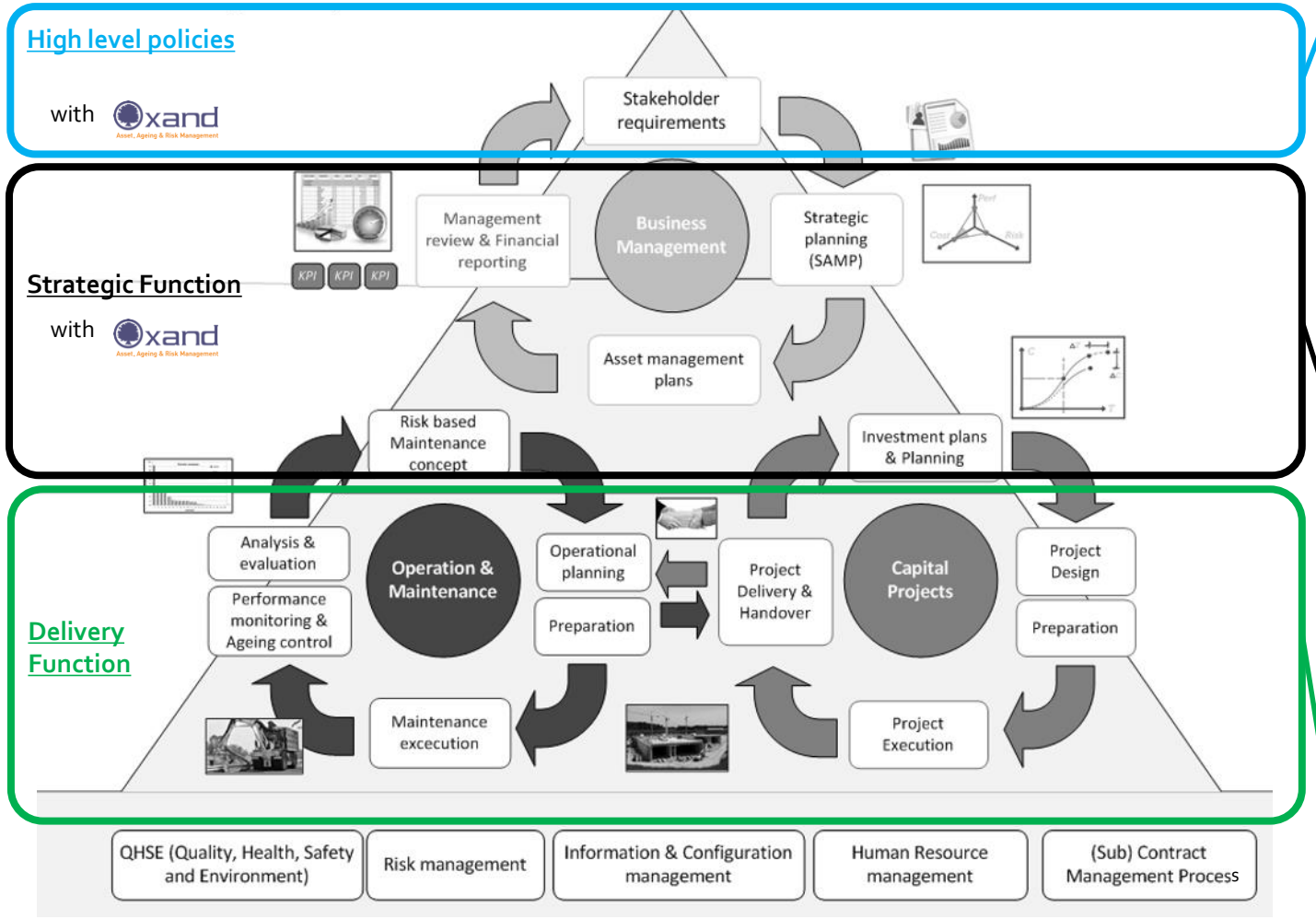
VILLE DE QUÉBEC

ENGIE Electrabel

PARIS

SYNDICAT DES EAUX D'ILE DE FRANCE

Lesson 1.: Align your organisation



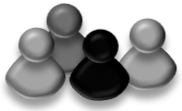
- ✓ Define strategic requirements and performance targets
- ✓ Assess the performance

- ✓ Develop long term services and lifecycle strategies to optimize expenditure, risk and residual value
- ✓ Develop systems and processes for lifecycle analysis and planning

- ✓ Exploitation and Maintenance

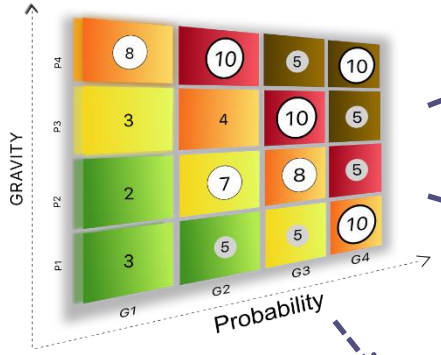
Lesson 2.: Be gain-oriented

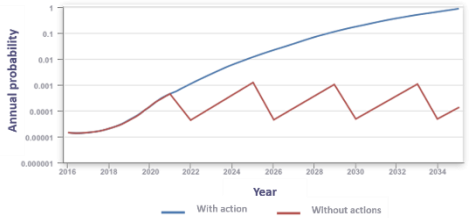
Assets



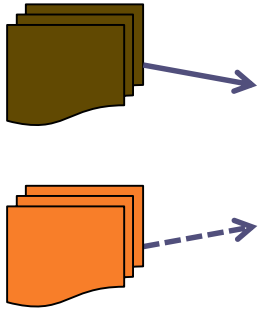
Experts know-how

Multi project data library



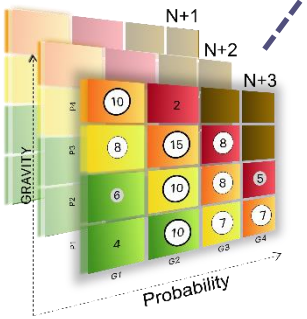


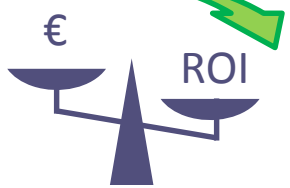
Failure probability evolution in time



Prioritised Actions

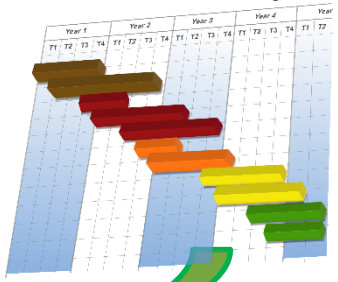
Optimised Actions





Cost / Benefit simulations
continuous improvement

Rationalised / Objectivised pluri-annual OPEX / CAPEX plans



- **Model refinement**
- **Asset decomposition**
- **Data mining**
- **IoT prioritised deployment**

Continuous & Dynamic improvement through main contributors identification

Lesson 3.: Go step-by-step

Typical situation
& continuous improvement

Existing data within the client organisation, at the Asset Register level:

- *Inventory and main characteristics from the studied perimeter:*
  (Date of first use / last replacement / Technical life time / Unit cost / Annual cost)
- *Maintenance actions per component type:*
  - *Planned & unplanned actions:*
    (cost, cost type (OPEX/CAPEX), associated time of unavailability, periodicity)
  - *Historical data of the actions performed per component*
- *Aging law and gravity (cf. "Better" section for details, initially estimated from technical experts knowledge, and historical data from CMMS system)*
- *List of the technical leverages impacting TCO through maintenance and design (scenario assessment)*

Good

Existing data within the client organisation, to be linked together with the Asset Register:

- *Refinement of the failure probability evolution in time (LCC analysis, MTBF…)*
- *Formalised gravity quotation in case of a failure, refined with Financial databases*
  (costs, over costs, unavailability, accessibility, safety, brand image…)
- *Refinement of the maintenance action effects on failure probabilities (sensitive assets)*
- *FMEA*

Better

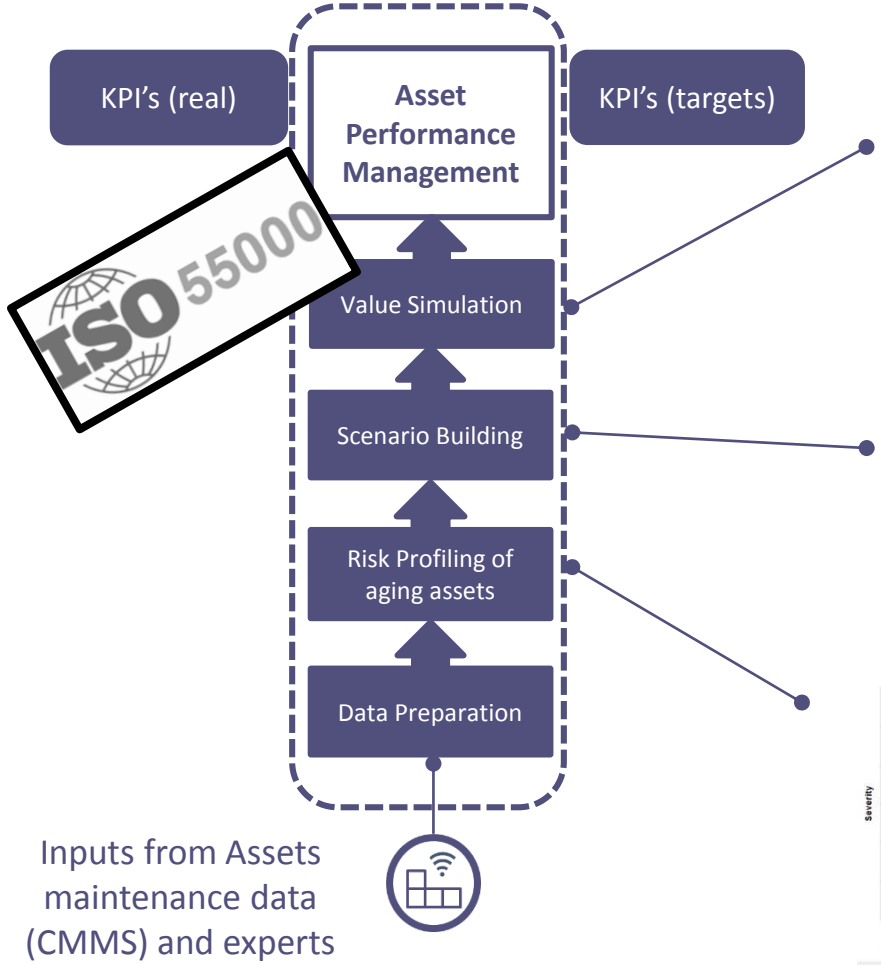
Data to be investigated after first simulations, and consolidated at multi-project scale:

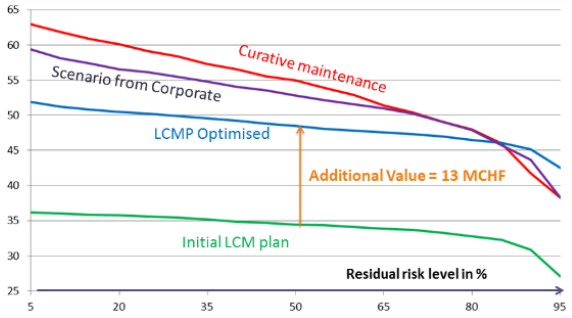
- *Data capitalisation through different projects, at global scale*
- *Refinement of the failure probability evolution in time (SCADA, IoT, Data mining…)*
- *Best maintenance practices for the Assets strongly contributing to the overall Profit & Loss*

Best

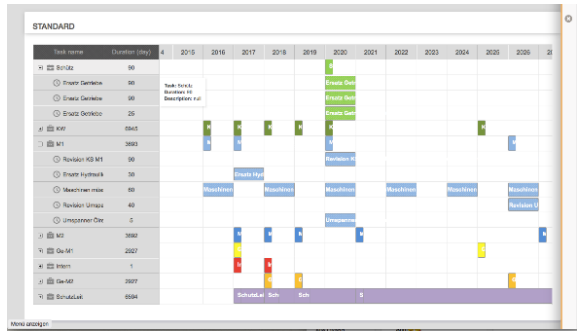
Lesson 4.: Adopt generic and standard approach

with Simeo™

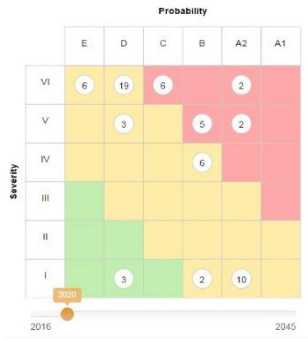


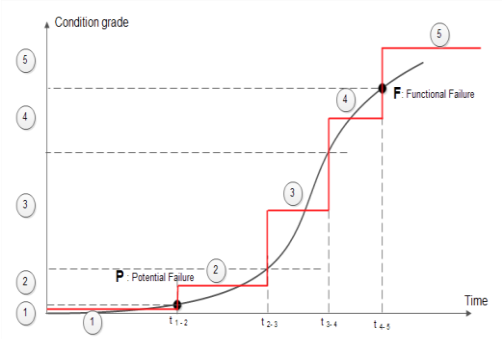


Predictive Analytics for investment scenario comparison



OPEX/CAPEX Planning

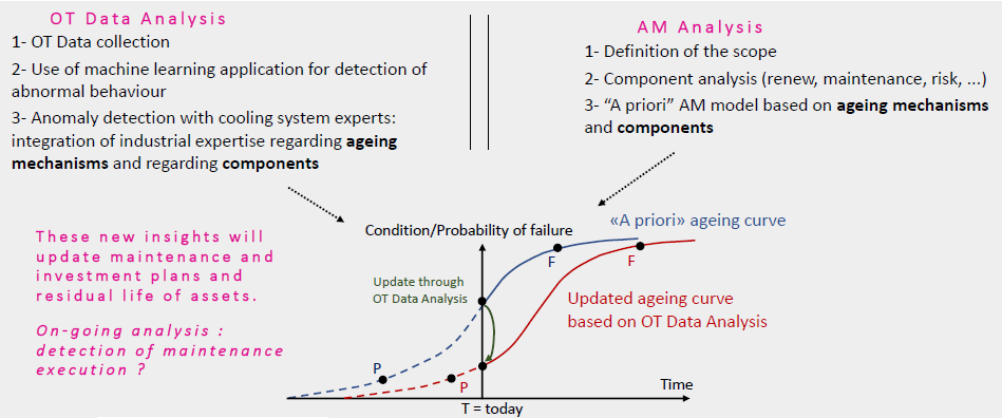




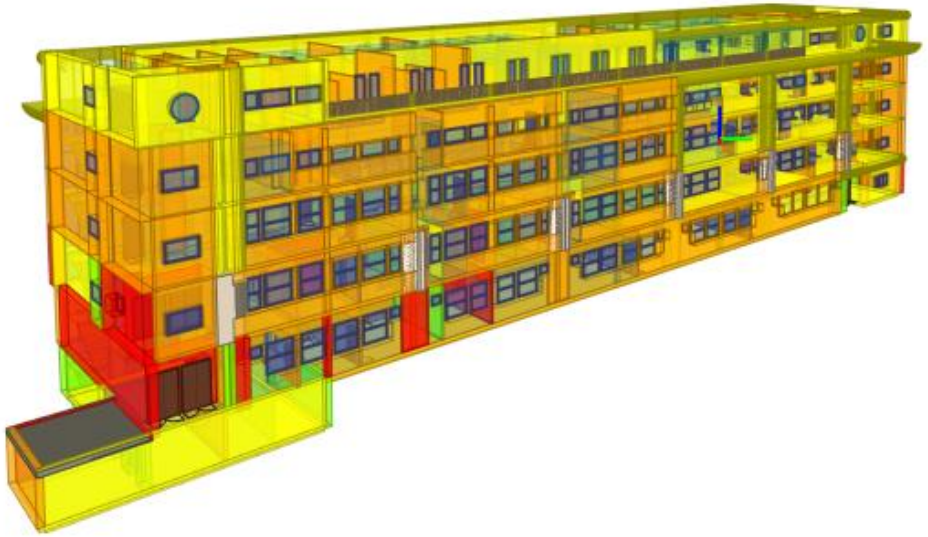
Aging and criticality

Lesson 5.: Deploy innovation

- Machine learning to continuously improve ageing, maintenance & renewal laws



- Risk matrix in Building Information Modelling



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